Author Index to Volume 3

(References with (L) are to Letters to the Editor)

Altar, William. Rotating polar groups in "organic" molecules—460
Anderson, Leigh C. (see Bates, John R.)—415, 531
Anderson, Thomas F. (see Yost, Don M.)—754(L)
——— **and Don M. Yost.** Raman spectrum of deuterium—242(L)
Andrews, D. H. (see Murray, J. W.)—180
——— (see Teets, D. E.)—175
Aston, J. G. (see Eidinoff, Maxwell L.)—379
Austin, J. B. and R. H. H. Pierce, Jr. Linear thermal expansion of sodium tungstate between 20° and 600°—683

Badger, Richard M. Relation between the internuclear distances and force constants of molecules and its application to polyatomic molecules—710
Baker, Weldon N. and Victor K. La Mer. Conductance of potassium chloride and of hydrochloric-deuterochloric acid in H_2O–D_2O mixtures. The viscosity of H_2O–D_2O—406
Barker, E. F. (see Ginsburg, Nathan)—668
——— **and E. K. Plyler.** Low frequency fundamental bands of methyl chloride, methyl bromide and methyl iodide—367
——— **and W. W. Sleator.** Infrared spectrum of heavy water—660
Barnes, R. Bowling and R. Robert Brattain. Near infrared spectrum of benzene-d_6—446
Barr, E. S. (see Plyler, E. K.)—679
Barth, Tom. F. W. Non-silicates with cristobalite-like structure—323
Bates, John R., J. O. Halford and Leigh C. Anderson. Comparison of some physical properties of hydrogen and deuterium bromides—531
———, **J. O. Halford and Leigh C. Anderson.** Comparison of some physical properties of hydrogen and deuterium iodides—415
Bauer, S. H. and T. R. Hogness. Products and processes of ionization in methyl chloride as determined by a mass spectrometer—687
——— **and A. Pollack.** Orientation of unsymmetrical molecules at interfaces—401
Bear, Richard S. and Henry Eyring. Relation between vector and bond eigenfunction methods for spin degeneracy—98
Beattie, James A., Canfield Hadlock and Noland Poffenberger. Compressibility of and an equation of state for gaseous ethane—93
———, **Noland Poffenberger and Canfield Hadlock.** Critical constants of propane—96.
Bell, Raymond M. (see Jeppesen, Myron A.)—363(L)
——— **and Myron A. Jeppesen.** Raman spectrum of sulphuric acid—245
Bordner, E. R. (see Rank, D. H.)—248
Brattain, R. Robert (see Barnes, R. Bowling)—446
Brickwedde, F. G., R. B. Scott and H. S. Taylor. Difference in vapor pressures of ortho and para deuterium—653
Bridgman, P. W. Pressure-volume-temperature relations of the liquid, and the phase diagram of heavy water—597
——— **and R. B. Dow.** Compressibility of solutions of three amino acids—35
Brockway, L. O. (see Cross, Paul C.)—821
——— **and Paul C. Cross.** Molecular structure of nickel carbonyl—828
Brodskii, A. E. and A. M. Sack. Raman spectra of arsenic trichloride and of its mixtures—449
Brönsted, J. N. On the definition of the Gibbs potential—223
Brown, W. G. and A. F. Daggett. Plant for the production of heavy water—216
Burwell, J. T. (see Warren, B. E.)—6

Calvin, Melvin (see Glockler, George)—771
Carman, Everett F. (see Harkins, William D.)—692
Case, L. O. (see Ferguson, A. L.)—285
Chu, T. C. (see Woo, Sho-Chow)—541
Cooke, T. G. (see Rodebush, W. H.)—834(L)
Coolidge, Albert Sprague (see James, Hubert M.)—129(L)
Copley, M. J. and T. E. Phipps. Surface ionization of potassium iodide on tungsten—594(L)
Cross, Paul C. Thermodynamic properties of sulfur compounds. I. Hydrogen sulfide, diatomic sulfur and the dissociation of hydrogen sulfide—168; II. Sulfur dioxide, carbon disulfide, and carbonyl sulfide—825
——— (see Brockway, L. O.)—828
——— **and L. O. Brockway.** Molecular structures of sulfur dioxide, carbon disulfide, and carbonyl sulfide—821
Cuthbertson, G. R. and G. B. Kistiakowsky. Thermal equilibrium between ethylene iodide, ethylene and iodine—631

Daggett, A. F. (see Brown, W. G.)—216
Deitz, V. Bond energies of the hydrocarbons: Corrections yielding additivity—58(L)
——— Concerning hydrocarbon bond additivity—436(L)
——— (see Murray, J. W.)—180
Dow, R. B. (see Bridgman, P. W.)—35
Duncan, A. B. F. Absorption spectrum of acetone vapor in the far ultraviolet—131
——— Vibrations of polyatomic molecules in excited electronic states—384

Eidinoff, Maxwell L. and J. G. Aston. Rotational entropy of nonrigid polyatomic molecules—379
von Elbe, Guenther (see Lewis, Bernard)—63
Evans, G. Harlowe (see Ferguson, A. L.)—285
Ewing, F. J. Crystal structure of diaspore—203
——— Crystal structure of lepidocrocite—420

Eyring, Henry. Activated complex in chemical reactions—107
——— (see Bear, Richard S.)—98
——— (see Sherman, Albert)—49
——— (see Stearn, Allen E.)—778
——— (see Wynne-Jones, W. F. K.)—492
——— **and Harold Gershinowitz.** Resolution of bond eigenfunctions in terms of a linearly independent set—224
———, **Harold Gershinowitz and Cheng E. Sun.** Absolute rate of homogeneous atomic reactions—786

Ferguson, A. L., L. O. Case and G. Harlowe Evans. Dielectric constant studies. V. Anomalous dispersion of lecithin in viscous mineral oils—285
Filippova, N. S. Isotope ratio in petroleum—316(L)
Foote, Frank (see Jette, Eric R.)—605
Freed, Simon and Harry G. Thode. Magnetic susceptibility of lithium hydride. The diamagnetism of ionic crystals—212
Fricke, Hugo. Decomposition of hydrogen peroxide by the irradiation of its aqueous solution with x-rays—364(L)
——— **and Edwin J. Hart.** Decomposition of water by x-rays in the presence of the iodide or bromide ion—596(L)
——— **and Edwin J. Hart.** Oxidation of Fe^{++} to Fe^{+++} by the irradiation with x-rays of solutions of ferrous sulfate in sulfuric acid—60(L)
——— **and Edwin J. Hart.** Oxidation of the ferrocyanide, arsenite and selenite ions by the irradiation of their aqueous solutions with x-rays—596(L)
——— **and Edwin J. Hart.** Oxidation of the nitrite to the nitrate ion by the irradiation of its aqueous solutions with x-rays—365(L)

Gaines, Allison, Jr. (see Walden, George H.)—364(L)
Gershinowitz, Harold (see Eyring, Henry)—224, 786
——— (see Rice, O. K.)—479, 490
Gingrich, N. S. (see Hultgren, Ralph)—351
Ginsburg, Nathan and E. F. Barker. Infrared absorption spectrum of methyl deuteride—668
Glockler, George and Melvin Calvin. Electron affinity of iodine from space-charge effects—771
Goldstein, Leonard (see Hoard, J. L.)—117, 199, 645
Goranson, R. W. and F. C. Kracek. Experimental investigation of the effect of pressure on phase equilibria of sodium tungstate and of related thermodynamic properties—87; errata—546
Gordon, A. R. Calculation of the free energy of polyatomic molecules from spectroscopic data. II—259
——— Free energy of sulphur dioxide—336
Gordy, Walter and Dudley Williams. Infrared absorption of cyanides and thiocyanates—664
Gross, Ph. (see Halpern, O.)—452
——— **and O. Halpern.** Theory of galvanic potentials. I—458
Grubb, A. C. (see Senkus, M.)—529(L)
——— **and A. B. Van Cleave.** Active hydrogen—139

Hadlock, Canfield (see Beattie, James A.)—93, 96
Hägg, Gunnar. Vitreous state—42, 363(L)
Halford, J. O. (see Bates, John R.)—415, 531
Halpern, O. On the dissociation constants of acids in light and heavy water—456
——— (see Gross, Ph.)—458
——— **and Ph. Gross.** On the electrolytic separation of the hydrogen isotopes—452
Hammett, Louis P. (see Walden, George H.)—364(L)
Harkins, William D., Everett F. Carman and Herman E. Ries, Jr. Monomolecular films of molecules which lie flat on the surface of water. I. Surface pressures and potentials of films of long molecules: Polymers of ω-hydroxy decanoic acid—692
Harris, Louis (see Salstrom, Edward J.)—241(L)
Hart, Edwin J. (see Fricke, Hugo)—60(L), 365(L), 596(L)
Hatcher, W. H. (see Steacie, E. W. R.)—291, 551
Hellmann, H. New approximation method in the problem of many electrons—61(L)
Helmholz, Lindsay. Crystal structure of hexagonal silver iodide—740
Hendricks, S. B. (see Maxwell, L. R.)—699
Herzfeld, K. F. Ou the speed of sublimation and condensation—319
Hibben, James H. Raman spectra of oxalic acid—675
Hipple, J. A., Jr. (see Wahl, M. H.)—435(L)
Hirschfelder, J. O. Polarizability and related properties of molecular hydrogen and the diatomic hydrogen ion—555
Hoard, J. L. and Leonard Goldstein. Crystal structure of cesium enneachlordithalliate, $Cs_3Tl_2Cl_9$—199
——— **and Leonard Goldstein.** Structure of caesium enneachlordiarsenite, $Cs_3As_2Cl_9$—117
——— **and Leonard Goldstein.** Structure of potassium hexachlorothalliate dihydrate—645
Hogness, T. R. (see Bauer, S. H.)—687
Horwood, J. F. (see Steacie, E. W. R.)—291, 551
Howard, J. B. On the normal vibration frequencies of NH_3, PH_3 and AsH_3—207
——— Principal magnetic susceptibilities of $K_3Fe(CN)_6$—813
Huffman, J. (see Wahl, M. H.)—435(L)
Huggins, Maurice L. Molecular constants and potential energy curves for diatomic molecules—473
Hughes, Edward W. Crystal structure of cyanuric triazide—1
——— Structure of cyanuric triazide—650(L)
Hukumoto, Yosisige. Photodissociation of some polyatomic molecules—164
Hull, Gordon F., Jr. Comparison of the Raman spectra of 1, 1, 1-and 1, 1, 2-trichloroethane—534
Hultgren, Ralph, N. S. Gingrich and B. E. Warren. Atomic distribution in red and black phosphorus and the crystal structure of black phosphorus—351
Huntington, H. B. (see Wigner, E.)—764
Hylleraas, Egil A. Energy formula and potential distribution of diatomic molecules—595(L)
——— Some critical remarks concerning Bailli Nilsen's paper: "On the theory of free radicals and organo-alkali compounds"—313

James, Hubert M. Wave mechanical treatment of the molecule Li_2^+—9
——— **and Albert Sprague Coolidge.** Correction and addition to the discussion of the ground state of H_2—129(L)

Jeppesen, Myron A. (see Bell, Raymond M.)—245
——— **and Raymond M. Bell.** Raman spectrum of orthophosphoric acid—363(L)
Jette, Eric R. and Frank Foote. Precision determination of lattice constants—605
Juliusburger, F., B. Topley and J. Weiss. Isotopic exchange reactions with iodine—437(L)
Jungers, Joseph C. and Hugh S. Taylor. Mercury photosensitized polymerization of acetylene and acetylene-d_2—338

Kassel, Louis S. Moles of vibration of butane and pentane. "Free rotation" about carbon-carbon bonds and a new type of stereoisomerism—326
——— Statistical mechanical treatment of the activated complex in chemical reactions—399
——— Thermodynamic functions of tetramethylmethane—115
Kemble, Edwin C. Intensities of the vibration-rotation bands of HCl—316(L)
Kimball, George E. Electronic structure of diamond—560
Kirkwood, John G. Statistical mechanics of fluid mixtures—300
Kistiakowsky, G. B. (see Cuthbertson, G. R.)—631
Klug, Harold P. Study of the molecular structure of diiodoethane. Iodine bond resonance and the molecular structure of diiodoethylene. Molecular packing in their crystal lattices—747
Knaggs, I. Ellie. Structure of cyanuric triazide—241(L)
Koenig, F. O. Families of thermodynamic equations. I. The method of transformations by the characteristic group—29
Kracek, F. C. (see Goranson, R. W.)—87, 546
Kunsman, C. H. and R. A. Nelson. On the disappearance of hydrogen in the presence of positive ions—754(L)

La Mer, Victor K. (see Baker, Weldon N.)—406
Laurie, L. L. (see Watson, H. B.)—170
Lempert, Joseph (see Rudberg, Erik)—627
Lewis, Bernard and Guenther von Elbe. Anomalous pressures and vibrations in gas explosions. Determination of the dissociation energy $2H_2O \rightleftarrows 2OH + H_2$—63
Liu, Ta-Kong (see Woo, Sho-Chow)—544
Ludlam, E. B. Green flame of phosphorus hydride—617
Luhr, Overton. Triatomic ions in mixtures of the hydrogen isotopes—146

MacWood, George E. (see Teal, G. K.)—760
——— **and H. C. Urey.** Raman spectrum of methyl deuteride—650(L)
Mahncke, H. E. and W. Albert Noyes, Jr. Ultraviolet absorption spectra of cis- and transdichloroethylenes—536
Manning, Millard F. Energy levels of a symmetrical double minima problem with applications to the NH_3 and ND_3 molecules—136
Maxwell, L. R., S. B. Hendricks and V. M. Mosley. Electron diffraction by gases—699
Mayer, Joseph E. (see Sutton, Paul Porter)—20
McAlpine, K. B. (see Smyth, C. P.)—347
——— **and C. P. Smyth.** Dipole moments of certain monosubstituted benzenes in the vapor state—55
McKay, H. A. C. Generalized thermodynamic notation—715
Meehan, E. J. Absorption spectrum of Eu^{+++} in crystalline $Eu_2(SO_4)_3 \cdot 8H_2O$—621
Melvin, Eugene H. and Oliver R. Wulf. Ultraviolet absorption of mixtures of No, NO_2 and H_2O—755
Morris, J. Carrell and Robert N. Pease. Summary of experimental activation energies of elementary reactions between hydrogen and the halogens—796
Mosley, V. M. (see Maxwell, L. R.)—699
Mulliken, Robert S. Electronic structures of polyatomic molecules and valence. VI. On the method of molecular orbitals—375; VII. Ammonia and water type molecules and their derivatives—506; VIII. Ionization potentials—514; IX. Methane, ethane, ethylene, acetylene—517; X. Aldehydes, ketones and related molecules—564; XI. Electroaffinity, molecular orbitals and dipole moments—573; XII. Electroaffinity and molecular orbitals, polyatomic applications—586; XIII. Diborane and related molecules—635; XIV. Linear triatomic molecules, especially carbon dioxide—720
Murray, John W. Raman spectrum of 1, 3-cyclohexadiene—59(L)
———, **V. Deitz and D. H. Andrews.** Studies with vibrating mechanical models. II. The series: C_6H_5Cl-C_6Cl_6—180

Nathan, W. S. (see Watson, H. B.)—170
Nelson, R. A. (see Kunsman, C. H.)—754(L)
Neujmin, H. (see Terenin, A.)—436(L)
Neuman, E. W. Transition in potassium superoxide—243(L)
Nielsen, Harald H. Rotation of molecules in crystals—189
Nilsen, Bailli. On the theory of free radicals and organoalkali compounds—15
Noyes, W. Albert, Jr. Ionization potential of acetone vapor—430
——— (see Mahncke, H. E.)—536
Nutting, G. C. (see Spedding, F. H.)—369

Oldenberg, O. Lifetime of free hydroxyl—266
Ouellet, Cyrias and Eric K. Rideal. Investigation of adsorbed films by means of a photoelectric counter—150

Pauling, Linus and G. W. Wheland. Remarks on the theory of aromatic free radicals—315
Pease, Robert N. (see Morris, J. Carrell)—796
Phipps, T. E. (see Copley, M. J.)—594(L)
Pierce, R. H. H., Jr. (see Austin, J. B.)—683
Pierce, W. C. Scattering of x-rays by polyatomic liquids. *n*-heptane—252
Plyler, E. K. (see Barker, E. F.)—367
——— **and E. S. Barr.** Reaction rate of acetic anhydride and water—679
Poffenberger, Noland (see Beattie, James A.)—93, 96
Pollack, A. (see Bauer, S. H.)—401
Present, Richard D. On the two-quantum Σ-states of the hydrogen molecule—122

Price, W. C. Far ultraviolet absorption spectra of formaldehyde and the alkyl derivatives of H_2O and H_2S—256
——— Far ultraviolet absorption spectra and ionization potentials of the ethyl halides—365(L)
——— **and R. W. Wood.** Far ultraviolet absorption spectra and ionization potentials of C_6H_6 and C_6D_6—439
Prins, J. A. Molecular arrangement and x-ray diffraction in ionic solutions—72; errata—362

Rank, D. H. and E. R. Bordner. Raman spectra of some molecules of the pentatomic type—248
Redlich, O. and W. Stricks. Vibrations of benzene and Raman spectra of benzene-*d* and benzene-d_2—834(L)
Rice, O. K. On the Stokes phenomenon for the differential equations which arise in the problem of inelastic atomic collisions—386
——— **and Harold Gershinowitz.** Activation energy of unimolecular reactions. II—490
——— **and Harold Gershinowitz.** Entropy and the absolute rate of chemical reactions. II. Unimolecular reactions—479
Rideal, Eric K. (see Ouellet, Cyrias)—150
Ridenour, L. N. (see Yost, Don M.)—133
Ries, Herman E., Jr. (see Harkins, William D.)—692
Rodebush, W. H. Absolute rate of a chemical reaction—242(L)
——— **and T. G. Cooke.** Conductance of salt crystals—834(L)
Rollefson, A. H. (see Rollefson, R.)—434(L)
Rollefson, R. and A. H. Rollefson. Index of refraction of HCl from 1 to 10 μ—434(L)
Rossini, Frederick D. Difference in the heats of formation of the two isomers of butane. An estimate of the heat of formation of tetramethylmethane (neopentane)—438(L)
Rudberg, Erik and Joseph Lempert. Vapor pressure of barium—627

Sack, A. M. (see Brodskii, A. E.)—449
Salstrom, Edward J. and Louis Harris. Raman spectra of fused salts—241(L)
Schechter, A. Homogeneous dissociation of hydrogen molecules by collision with positive ions—433(L)
Schultze, Georg R. Active hydrogen—317(L)
Scorah, R. L. On the thermodynamic theory of detonation—425
Scott, R. B. (see Brickwedde, F. G.)—653
Seltz, Harry. Perfect ternary solid solutions—503
Senkus, M. and A. C. Grubb. Critical voltage for the formation of ozone by the alternating-current discharge—529(L)
Serber, Robert. Energies of hydrocarbon molecules—81
Shaw, G. T. (see Steacie, E. W. R.)—344
Sherman, Albert, C. E. Sun and Henry Eyring. Addition of symmetrical diatomic molecules to benzene—49
Shinohara, K. (see Yost, Don M.)—133
Sleator, W. W. (see Barker, E. F.)—660
Smith, Hilton A. and William E. Vaughan. Ethane-ethylene-hydrogen equilibrium—341
Smyth, C. P. (see McAlpine, K. B.)—55
——— **and K. B. McAlpine.** Constancy of two dipole moments in the vapor state and their apparent variation in solution—347
——— **and W. S. Walls.** Dielectric investigations on nitromethane and chloropicrin—557
Spedding, F. H. and G. C. Nutting. Zeeman effect of the absorption lines of crystalline $KCr(SO_4)_2 \cdot 12H_2O$—369
Steacie, E. W. R., W. H. Hatcher and J. F. Horwood. Kinetics of the decomposition of gaseous glyoxal—291
———, **W. H. Hatcher and J. F. Horwood.** Kinetics of the oxidation of gaseous glyoxal—551
——— **and G. T. Shaw.** Homogeneous unimolecular decomposition of gaseous alkyl nitrites. III. The decomposition of *n*-propyl nitrite—344
Stearn, Allen E. and Henry Eyring. Nonadiabatic reactions. The decomposition of N_2O—778
Stricks, W. (see Redlich, O.)—834(L)
Sturtevant, Julian M. Orientation effects in bimolecular ionic reactions—295
Sun, Cheng, E. (see Eyring, Henry)—786
——— (see Sherman, Albert)—49
Sutton, Paul Porter and Joseph E. Mayer. Direct experimental determination of electron affinities, the electron affinity of iodine—20
Syrkin, J. K. (see Wolkenstein, M.)—594(L)

Taylor, Hugh S. (see Brickwedde, F. G.)—653
——— (see Jungers, Joseph C.)—338
Teal, Gordon K. and George E. MacWood. Raman spectra of the isotopic molecules H_2, HD, and D_2—760
Teets, D. E. and D. H. Andrews. Studies with vibrating mechanical models. I. Benzene, toluene and the phenyl halides—175
Terenin, A. and H. Neujmin. Photodissociation of polyatomic molecules in the Schumann ultraviolet—436(L)
Thode, Harry G. (see Freed, Simon)—212
Topley, B. (see Juliusburger, F.)—437(L)

Ubbelohde, A. R. Thermal conductivity of polyatomic gases—219; erratum—362
Urey, Harold C. (see MacWood, George E.)—650(L)
——— (see Wahl, Milton H.)—411
——— (see Weber, L. A.)—129(L)

Van Cleave, A. B. (see Grubb, A. C.)—139
Van Vleck, J. H. Group relation between the Mulliken and Slater-Pauling theories of valence—803
——— Valence strength and the magnetism of complex salts—807
Vaughan, William E. (see Smith, Hilton A.)—341
Verwey, E. J. W. Incomplete atomic arrangement in crystals—592

Wahl, Milton H. (see Weber, L. A.)—129(L)
———, **J. Huffman and J. A. Hipple, Jr.** Attempted concentration of the heavy nitrogen isotope—435(L)
——— **and Harold C. Urey.** Vapor pressures of the isotopic forms of water—411

Walden, George H., Louis P. Hammett and Allison Gaines, Jr. Magnetic properties of phenanthroline ferric complexes—364(L)
Walls, W. S. (see Smyth, C. P.)—557
Warren, B. E. (see Hultgren, Ralph)—351
——— **and J. T. Burwell.** Structure of rhombic sulphur—6
Watson, H. B., W. S. Nathan and L. L. Laurie. Acidities of ketones and the mechanism of prototropic change—170
Weber, L. A., M. H. Wahl and H. C. Urey. Fractionation of the oxygen isotopes in an exchange reaction—129(L)
Weinbaum, Sidney. Normal state of the helium molecule ion, He_2^+—547
Weiss, J. (see Juliusburger, F.)—437(L)
Wheland, G. W. Number of canonical structures of each degree of excitation for an unsaturated or aromatic hydrocarbon—356
——— Quantum-mechanical treatment of molecules by the method of spin valence—230
——— (see Pauling, Linus)—315
Wigner, E. and H. B. Huntington. On the possibility of a metallic modification of hydrogen—764
Williams, Dudley (see Gordy, Walter)—664
Wilson, E. Bright, Jr. Normal frequencies of vibration of the plane square molecule AB_4 with reference to the structure of nickel carbonyl—59(L)
——— Statistical weights of the rotational levels of polyatomic molecules, including methane, ammonia, benzene, cyclopropane and ethylene—276
——— Symmetry considerations concerning the splitting of vibration-rotation levels in polyatomic molecules—818
Wolkenstein, M. and J. K. Syrkin. Raman spectra of dioxane—594(L)
Woo, Sho-Chow and T. C. Chu. Absorption spectrum of diacetylene in the near ultraviolet—541
——— **and Ta-Kong Liu.** Absorption spectra and dissociation energies of cyanic acid and some isocyanates—544
Wood, R. W. Raman spectrum of benzene-d_6—444
——— (see Price, W. C.)—439
Wulf, Oliver R. (see Melvin, E. H.)—755
Wynne-Jones, W. F. K. Mixtures of deuterium and protium oxides as ideal solutions—197(L)
——— **and Henry Eyring.** Absolute rate of reactions in condensed phases—492

Yost, Don M. (see Anderson, Thomas F.)—242(L)
——— **and Thomas F. Anderson.** Raman spectrum of arsenic trichloride—754(L)
———, **L. N. Ridenour and K. Shinohara.** Chemical identification of the radioelements produced from carbon and boron by deuteron bombardment—133

Zachariasen, W. H. Liquid "structure" of methyl alcohol—158
——— Note on the crystal lattice of samarium sulphate octo-hydrate—197(L)
——— Vitreous state—162

Analytic Subject Index to Volume 3

(References with (L) are to Letters to the Editor)

Absorption and reflection of light (see also **Spectra, absorption**)
Absorption spectra
Of acetic anhydride and H_2O, E. K. Plyler, E. S. Barr—679
Of acetone vapor, A. B. F. Duncan—131
Of C_6D_6, R. W. Wood—444
Of C_6D_6 and C_4H_4S, R. B. Barnes, R. R. Brattain—446
Of CH_3Cl, CH_3Br and CH_3I, E. F. Barker, E. K. Plyler—367
Of C_6H_6 and C_6D_6, W. C. Price, R. W. Wood—439
Of cis- and transdichloroethylenes, H. E. Mahncke, W. A. Noyes, Jr.—536
Of diacetylene, Sho-Chow Woo, T. C. Chu—541
Of ethyl halides, W. C. Price—365(L)
Of Eu^{+++} in $Eu_2(SO_4)_3 \cdot 8H_2O$, E. J. Meehan—621
Of formaldehyde and derivatives of H_2O and H_2S, W. C. Price—256
Of HCNO and isocyanates, Sho-Chow Woo, Ta-Kong Liu—544
Of NO, NO_2 and H_2O, H. Melvin, O. R. Wulf—755
Of solid $KCr(SO_4)_2 \cdot 12H_2O$, F. H. Spedding, G. C. Nutting—369
Adsorption (see **Surface phenomena**)
Affinity
Electron, for I, G. Glockler, M. Calvin—771; P. P. Sutton, J. E. Mayer—20
Apparatus and methods
Absorption spectra and kinetics of reactions, E. K. Plyler, E. S. Barr—679
Investigation of adsorbed film by photoelectric counter, C. Ouellet, E. K. Rideal—150
Precision determination of lattice constants, E. R. Jette, F. Foote—605
Atomic spectra
Absorption spectrum of Eu^{+++} in $Eu_2(SO_4)_3 \cdot 8H_2O$, E. J. Meehan—621

Catalysis
Acidities of ketones and, H. B. Watson, W. S. Nathan, L. L. Laurie—170
Chemical reactions (see also **Kinetics of reactions and Catalysis**)
Between C_2H_6, C_2H_4 and H_2, H. A. Smith, W. E. Vaughan—341
Between ethylene iodide, ethylene and iodine, G. R. Cuthbertson, G. B. Kistiakowsky—631
Equilibria involving SO_2, CS_2 and COS, P. C. Cross—825
Exchange equilibria involving O isotopes, L. A. Weber, M. H. Wahl, H. C. Urey—129(L)
Exchange reactions of I, F. Juliusburger, B. Topley, J. Weiss—437(L)
Between NO, NO_2 and H_2O, H. Melvin, O. R. Wulf—755
Collision phenomena
Inelastic atomic collisions, O. K. Rice—386
Compton effect (see **X-rays, diffraction, scattering, etc.**)
Conductivity, thermal
Of polyatomic gases, A. R. Ubbelohde—219, 362
Crystal structure
Absorption spectrum of Eu^{+++} in $Eu_2(SO_4)_3 \cdot 8H_2O$, E. J. Meehan—621
Of black P, R. Hultgren, N. S. Gingrich, B. E. Warren—351
Of $Cs_3As_2Cl_9$, J. L. Hoard, L. Goldstein—117
Of $Cs_3Tl_2Cl_9$, J. L. Hoard, L. Goldstein—199
Of cyanuric triazide, E. W. Hughes—1, 650(L)
Of cyanuric triazide, I. E. Knaggs—241(L)
Of diaspore, $AlHO_2$, F. J. Ewing—203
Of diiodoethylene and diiodoethane, H. P. Klug—747
Hexagonal silver iodide, L. Helmholz—740
Incomplete atomic arrangement in Fe_2O_3 and Al_2O_3, E. J. W. Verwey—592
Of lepidocrocite, F. J. Ewing—420
Of $K_2O \cdot Al_2O_3$, T. F. W. Barth—323
Potassium hexachlorothalliate dihydrate, J. L. Hoard, L. Goldstein—645
Precision determination of lattice constants, E. R. Jette, F. Foote—605
Of rhombic S_2, B. E. Warren, J. T. Burwell—6
Rotation of molecules in crystals, H. H. Nielsen—189
Of samarium sulphate octo-hydrate, W. H. Zachariasen—197(L)
Vitreous state, G. Hägg—42, 363(L); W. H. Zachariasen—162
Crystalline state
Electrolytic conductance of crystals, W. H. Rodebush, T. G. Cooke—834(L)
Inversion of sodium tungstate, J. B. Austin, R. H. H. Pierce, Jr.—683
Structure of diamond, G. E. Kimball—560
Thermal expansion of sodium tungstate, J. B. Austin, R. H. H. Pierce, Jr.—683

Detonation
Thermodynamic theory of, R. L. Scorah—425
Deuterium (see **Hydrogen and Isotopes**)
Dielectric constant
Dispersion of, A. L. Ferguson, L. O. Case, G. H. Evans—285
Of nitromethane and chloropicrin, C. P. Smyth, W. S. Walls—557
Dipole moments
Of heptyl bromide and butyl chloride, C. P. Smyth, K. B. McAlpine—347
Of monosubstituted benzenes, K. B. McAlpine, C. P. Smyth—55
Theory of, R. S. Mulliken—573
Discharge of electricity in gases
Formation of ozone, M. Senkus, A. C. Grubb—529(L)
Disintegration of nucleus
Radioelements from C and B bombarded by deuterons, D. M. Yost, L. N. Ridenour, K. Shinohara—133

Electrolysis
Of salt crystals, W. H. Rodebush, T. G. Cooke—834(L)
Separation of H isotopes, O. Halpern, Ph. Gross—452
Electrolytes
Dissociation constants in H_2O and D_2O, O. Halpern—456
KCl, HCl and DCl in H_2O-D_2O mixtures, W. N. Baker, V. K. La Mer—406
X-ray diffraction in ionic solutions, J. A. Prins—72, 362
Electrolytic cells
Theory of galvanic potentials, Ph. Gross, O. Halpern—458
Electron affinity
Of I, P. P. Sutton, J. E. Mayer—20
Of I from space charge effects, G. Glockler, M. Calvin—771
Electron diffraction
By gases, L. R. Maxwell, S. B. Hendricks, V. M. Mosley—699
Structure of 4,4′ diiododiphenyl ether, P and As, L. R. Maxwell, S. B. Hendricks, V. M. Mosley—699
Structure of nickel carbonyl, L. O. Brockway, P. C. Cross—828
Entropy (see **Thermodynamic properties**)
Equation of state
For gaseous ethane, J. A. Beattie, C. Hadlock, N. Poffenberger—93
Errata
Equilibria of sodium tungstate, R. W. Goranson, F. C. Kracek—546
Thermoconductivity of gases, A. R. Ubbelohde—362

Gases
Conductivity, thermal, A. R. Ubbelohde—219, 362
Detonation, theory of, R. L. Scorah—425
Equation of state of ethane, J. A. Beattie, C. Hadlock, N. Poffenberger—93
Inelastic collisions, O. K. Rice—386
Sublimation and condensation, K. F. Herzfeld—319

Heat capacity (see **Thermodynamic properties**)
Hydrogen (see also **Isotopes**)
Active, A. C. Grubb, A. B. Van Cleave—139
Active, G. R. Schultze—317(L)
Disappearance of, in presence of positive ions, C. H. Kunsman, R. A. Nelson—754(L)
Normal state of molecule, H. M. James, A. S. Coolidge—129(L)
Ortho and para deuterium, vapor pressures of, F. G. Brickwedde, R. B. Scott, H. S. Taylor—653
Possibility of a metallic modification, E. Wigner, H. B. Huntington—764
Separation of isotopes, O. Halpern, Ph. Gross—452
States of molecule, R. D. Present—122

Ionization potentials
Of acetone, W. A. Noyes, Jr.—430
Of C_6H_6 and C_6D_6, W. C. Price, R. W. Wood—439
Of ethyl halides, W. C. Price—365(L)
Of methyl chloride, S. H. Bauer, T. R. Hogness—687
Ions
Dissociation of H_2 by, A. Schechter—433(L)
Ions in gases
In methyl chloride, S. H. Bauer, T. R. Hogness—687
Ions, positive
Disappearance of H_2 in presence of, C. H. Kunzman, R. A. Nelson—754(L)
Isotopes
Absorption spectrum of CH_3D, N. Ginsburg, E. F. Barker—668
From C and B bombarded by deuterons, D. M. Yost, L. N. Ridenour, K. Shinohara—133
Dissociation constants in H_2O and D_2O, O. Halpern—456
Electrolytic separation, O. Halpern, Ph. Gross—452
Exchange reactions of I, F. Juliusburger, B. Topley, J. Weiss—437(L)
Fractionation factor for separation of H_2O and D_2O, W. G. Brown, A. F. Daggett—216
Fractionation of O isotopes, L. A. Weber, M. H. Wahl, H. C. Urey—129(L)
Infrared spectrum of C_6D_6, R. B. Barnes, R. R. Brattain—446
Isotope ratio in petroleum, N. S. Filippova—316(L)
Plant for D_2O, W. G. Brown, A. F. Daggett—216
Polymerization of C_2H_2 and C_2D_2, J. C. Jungers, H. S. Taylor—338
KCl, HCl and DCl in H_2O-D_2O mixtures, W. N. Baker, V. K. La Mer—406
Properties of C_6H_6 and C_6D_6, W. C. Price, R. W. Wood—439
Properties of D_2O ices, P. W. Bridgman—597
Properties of HI and DI, J. R. Bates, J. O. Halford, L. C. Anderson—415
Raman spectra of H_2, HD and D_2, G. K. Teal, G. E. MacWood—760
Raman spectrum of D_2, T. F. Anderson, D. M. Yost—242(L)
Spectrum of C_6D_6, R. W. Wood—444
Structure of NH_3 and ND_3, M. F. Manning—136
Triatomic ions in H_2, HD and D_2, O. Luhr—146
Vapor pressure of HBr and DBr, J. R. Bates, J. O. Halford, L. C. Anderson—531
Vapor pressures of H_2O-D_2O mixtures, W. F. K. Wynne-Jones—197(L)
Vapor pressures of H_2O^{16}, HDO^{16}, and H_2O^{18}, M. H. Wahl, H. C. Urey—411
Vapor pressures of $N^{14}H_3$ and $N^{15}H_3$, M. H. Wahl, J. Huffman, J. A. Hipple, Jr.—435(L)

Kinetics of reactions
Absolute rate of chemical reaction, W. H. Rodebush—242(L)
Absolute rate in condensed phases, W. F. K. Wynne-Jones, H. Eyring—492
Absolute rate of homogeneous reactions, H. Eyring, H. Gershinowitz, C. E. Sun—786
Absolute rate, unimolecular reactions, O. K. Rice, H. Gershinowitz—479
Acetic anhydride and H_2O, E. K. Plyler, E. S. Barr—679
Activated complex, H. Eyring—107
Activated complex in chemical reactions, L. S. Kassel—399

Kinetics of reactions (continued)
Activation energy, O. K. Rice, H. Gershinowitz—490
Activation energy of H_2 and halogen reactions, J. C. Morris, R. N. Pease—796
Addition of symmetrical diatomic molecules to benzene, A. Sherman, C. E. Sun, H. Eyring—49
Decomposition of glyoxal, E. W. R. Steacie, W. H. Hatcher, J. F. Horwood—291
Decomposition of H_2O_2 by x-rays, H. Fricke—364(L)
Decomposition of *n*-propyl nitrite, E. W. R. Steacie, G. T. Shaw—344
Detonation, R. L. Scorah—425
Dissociation of H_2 by ions, A. Schechter—433(L)
Exchange reactions of I, F. Juliusburger, B. Topley, J. Weiss—437(L)
Gas explosions, O_2 and H_2, B. Lewis, G. von Elbe—63
Induced by x-rays, H. Fricke, E. J. Hart—596(L)
Inelastic atomic collisions, O. K. Rice—386
Lifetime of free hydroxyl, O. Oldenberg—266
Nonadiabatic reaction, decomposition of N_2O, A. E. Stearn, H. Eyring—778
Orientation effects in ionic reactions, J. M. Sturtevant—295
Ortho and para deuterium, F. G. Brickwedde, R. B. Scott, H. S. Taylor—653
Oxidation of glyoxal, E. W. R. Steacie, W. H. Hatcher, J. F. Horwood—551
Oxidation of Fe^{++} to Fe^{+++} induced by x-rays, H. Fricke, E. J. Hart—60(L)
Oxidation of nitrite induced by x-rays, H. Fricke, E. J. Hart—365(L)
Ozone in alternating-current discharge, M. Senkus, A. C. Grubb—529(L)
Photodissociation of polyatomic molecules, Y. Hukumoto—164; A. Terenin, H. Neujmin—436(L)
Polymerization of C_2H_2 and C_2D_2, J. C. Jungers, H. S. Taylor—338
Prototropic change, H. B. Watson, W. S. Nathan, L. L. Laurie—170
Sublimation and condensation, K. F. Herzfeld—319

Liquids
Structure of methyl alcohol, W. H. Zachariasen—158
Vitreous state, G. Hägg—42, 363(L); W. H. Zachariasen—162

Magnetic properties
Of phenanthroline ferric complexes, G. H. Walden, L. P. Hammett, A. Gaines, Jr.—364(L)
Principal susceptibilities of $K_3Fe(CN)_6$, J. B. Howard—813
Susceptibility of LiH, S. Freed, H. G. Thode—212
And valence strength, J. H. Van Vleck—807

Mechanics, quantum
Of absolute reaction rate, H. Eyring, H. Gershinowitz, C. E. Sun—786
Addition of symmetrical diatomic molecules to benzene, A. Sherman, C. E. Sun, H. Eyring—49
Approximation method in many electron problems, H. Hellmann—61(L)
Bond eigenfunctions, H. Eyring, H. Gershinowitz—224
Diatomic molecules, M. J. Copley, T. E. Phipps—594(L)
Energies of hydrocarbon molecules, R. Serber—81
He_2^+ molecule ion, S. Weinbaum—547
Of H_2 and H_2^+, J. O. Hirschfelder—555
Of H_2 molecule, H. M. James, A. S. Coolidge—129(L); R. D. Present—122
Of Li_2^+, H. M. James—9
Metallic modification of H, E. Wigner, H. B. Huntington—764
Molecules by method of spin valence, G. W. Wheland—230
Of Mulliken and Slater-Pauling theories of valence—J. H. Van Vleck—803
Of nonadiabatic reactions, A. E. Stearn, H. Eyring—778
Rotation of molecules in crystals, H. H. Nielsen—189
Splitting of vibration-rotation levels, E. B. Wilson, Jr.—818
Structure of diamond, G. E. Kimball—560
Vector and bond eigenfunction methods, R. S. Bear, H. Eyring—98

Mechanics, statistical
Of fluid mixtures, J. G. Kirkwood—300
Free energy of polyatomic molecules, A. R. Gordon—259
Statistical weights of rotational levels, E. B. Wilson, Jr.—276
Sublimation and condensation, K. F. Herzfeld—319

Molecular films
Of ω-hydroxy decanoic acid, surface pressures and potentials, W. D. Harkins, E. F. Carman, H. E. Ries, Jr.—692

Molecular spectra
Absorption spectra of HI and DI, J. R. Bates, J. O. Halford, L. C. Anderson—415
Absorption spectrum of Eu^{+++} in $Eu_2(SO_4)_3 \cdot 8H_2O$, E. J. Meehan—621
Of acetone vapor, A. B. F. Duncan—131
Of C_6D_6 and C_4H_4S, R. B. Barnes, R. R. Brattain—446
Of C_6H_6 and C_6D_6, W. C. Price, R. W. Wood—439
Of CH_3Cl, CH_3Br and CH_3I, E. F. Barker, E. K. Plyler—367
Of cis- and transdichloroethylenes, H. E. Mahncke, W. A. Noyes, Jr.—536
Of cyanides, cyanates, and thiocyanates, W. Gordy, D. Williams—664
Of diacetylene, Sho-Chow Woo, T. C. Chu—541
Of ethyl halides, W. C. Price—365(L)
Of formaldehyde and derivatives of H_2O and H_2S, W. C. Price—256
Green flame of phosphorus hydride, E. B. Ludlam—617
Of HCNO and isocyanates, Sho-Chow Woo, Ta-Kong Liu—544
Of D_2O, infrared, E. F. Barker, W. W. Sleator—660
Infrared absorption of methyl deuteride, N. Ginsburg, E. F. Barker—668
Intensities of vibration-rotation bands of HCl, E. C. Kemble—316(L)
Of NO, NO_2 and H_2O, H. Melvin, O. R. Wulf—755

Molecular structure and constants
Of aldehydes and ketones, R. S. Mulliken—564
Of NH_3 and ND_3, M. F. Manning—136
Of arsenic trichloride, A. E. Brodskii, A. M. Sack—449

Benzene, toluene and phenyl halides by mechanical models, D. E. Teets, D. H. Andrews—175
Of C_6D_6, R. W. Wood—444
Of C_6H_6 and C_6D_6, W. C. Price, R. W. Wood—439
Of diacetylene, Sho-Chow Woo, T. C. Chu—541
Diiodoethane and diiodoethylene, H. P. Klug—747
Of dioxane, M. Wolkenstein, J. K. Syrkin—594(L)
Dissociation energies of molecules, A. Terenin, H. Neujmin—436(L)
Dissociation energy of H_2O and OH, B. Lewis, G. von Elbe—63
Electric moment of HCl, R. Rollefson, A. H. Rollefson—434(L)
Electroaffinity and dipole moments, R. S. Mulliken—573
Electroaffinity, polyatomic applications, R. S. Mulliken—586
Electronic structure of diborane, *et al.*, R. S. Mulliken—635
Electronic structures of NH_3 and H_2O type, R. S. Mulliken—506
Electronic structure of linear triatomic molecules, R. S. Mulliken—720
Electronic structure of methane, ethane, ethylene, acetylene, R. S. Mulliken—517
Electronic structures of molecules, R. S. Mulliken—514, 564, 573, 586
Electronic structures of polyatomic molecules, R. S. Mulliken—375
Energy formula and potential energy, E. A. Hylleraas, 595(L)
Of 4,4′ diiododiphenyl ether, P and As, L. R. Maxwell, S. B. Hendricks, V. M. Mosley—699
Frequencies of NH_3, PH_3 and AsH_3, J. B. Howard—207
Of H_2 and H_2^+, J. O. Hirschfelder—555
Of H_2O, HDO, and D_2O, E. F. Barker, W. W. Sleator—660
Internuclear distances and force constants, R. M. Badger—710
Ionization of acetone, W. A. Noyes, Jr.—430
Ionization potential of polyatomic molecules, R. S. Mulliken—506, 514
Of methyl deuteride, N. Ginsburg, E. F. Barker—668; G. E. MacWood, H. C. Urey—650(L)
Of nickel carbonyl, L. O. Brockway, P. C. Cross—825
Of 1,1,1- and 1,1,2-trichloroethane, G. F. Hull, Jr.—534
Of oxalic acid, J. H. Hibben—675
Pentatomic type molecule, D. H. Rank, E. R. Bordner—248
Of some polyatomic molecules, Y. Hukumoto—164
Potential energy of diatomic molecules, M. L. Huggins—473
Raman spectra of H_2, HD and D_2, G. K. Teal, G. E. MacWood—760
Refractive index of HCl, R. Rollefson, A. H. Rollefson—434(L)
Rotating groups in molecules, W. Altar—460
Series: C_6H_5Cl-C_6Cl_6, J. W. Murray, V. Deitz, D. H. Andrews—180
Splitting of vibration-rotation levels in polyatomic molecules, E. B. Wilson, Jr.—818
Structures of methane, ethane, ethylene, acetylene, R. S. Mulliken—517
Of SO_2, CS_2 and COS, P. C. Cross, L. O. Brockway—821
Vibration of butane and pentane, L. S. Kassel—326
Vibrations of plane square molecule AB_4, (nickel carbonyl), E. B. Wilson, Jr.—59(L)
Vibrations of polyatomic molecules, A. B. F. Duncan—384

Phase rule
D_2O, P. W. Bridgman—597
Perfect ternary solid solutions, H. Seltz—503
Pressure and phase equilibria of sodium tungstate, R. W. Goranson, F. C. Kracek—87

Photochemistry
Of some polyatomic molecules, Y. Hukumoto—164

Radioelements
From C and B bombarded by deuterons, D. M. Yost, L. N. Ridenour, K. Shinohara—133

Raman spectra
Of arsenic bichloride, A. E. Brodskii, A. M. Sack—449
Of arsenic trichloride, D. M. Yost, T. F. Anderson—754(L)
Of benzene-*d* and benzene-d_2, O. Redlich, W. Stricks—834(L)
Correlation by mechanical models, J. W. Murray, V. Deitz, D. H. Andrews—180; D. E. Teets, D. H. Andrews—175
Of C_6D_6, R. W. Wood—444
Of D_2, T. F. Anderson, D. M. Yost—242(L)
Of dioxane, M. Wolkenstein, J. K. Syrkin—594(L)
Of fused salts, E. J. Salstrom, L. Harris—241(L)
Of H_2, HD and D_2, G. K. Teal, G. E. MacWood—760
Of methyl deuteride, G. E. MacWood, H. C. Urey—650(L)
Of 1,1,1- and 1,1,2-trichloroethane—G. F. Hull, Jr.—534
Of 1,3-cyclohexadiene, J. W. Murray—59(L)
Of orthophosphoric acid, M. A. Jeppesen, R. M. Bell—363(L)
Of oxalic acid, J. H. Hibben—675
Of pentatomic type of molecule, D. H. Rank, E. R. Bordner—248
Of H_2SO_4, R. M. Bell, M. A. Jeppesen—245

Solutions
Absorption spectra of cyanides, cyanates and thiocyanates, W. Gordy, D. Williams—664
Acidities of ketones, H. B. Watson, W. S. Nathan, L. L. Laurie—170
Bimolecular ionic reactions, J. M. Sturtevant—295
Compressibility of solutions of three amino acids—P. W. Bridgman, R. B. Dow—35
Conductance of KCl and of HCl-DCl in H_2O-D_2O mixtures, W. N. Baker, V. K. La Mer—406
Dissociation constants in H_2O and D_2O, O. Halpern—456
Perfect ternary solid, H. Seltz—503
Raman spectra of oxalic acid, J. H. Hibben—675

Solutions (continued)
Raman spectrum of orthophosphoric acid, M. E. Jeppesen, R. M. Bell—363(L)
Raman spectrum of H_2SO_4, R. M. Bell, M. A. Jeppesen—245
Statistical mechanics of, J. G. Kirkwood—300
Theory of galvanic potentials, Ph. Gross, O. Halpern—458
Vitreous state, G. Hägg—42, 363(L)
X-ray diffraction in, J. A. Prins—72, 362
Spectra, molecular (see **Molecular spectra**)
Surface phenomena
Adsorbed films on Au, C. Ouellet, E. K. Rideal—150
Orientation of unsymmetrical molecules, S. H. Bauer, A. Pollack—401
K. I. on W, M. J. Copley, T. E. Phipps—594(L)

Thermodynamic properties
Calculation from molecular spectra data, A. R. Gordon—259
C_2H_6-C_2H_4-H_2 equilibrium, H. A. Smith, W. E. Vaughan—341
Of D_2O ices, P. W. Bridgman—597
Electron affinity of I, P. P. Sutton, J. E. Mayer—20
Entropy of polyatomic molecules, M. L. Eidinoff, J. G. Aston—379
Equilibria of sodium tungstate, R. W. Goranson, F. C. Kracek—87, 546
Equilibrium between ethylene iodide, ethylene and iodine, G. R. Cuthbertson, G. B. Kistiakowsky—631
Exchange equilibria involving O isotopes, L. A. Weber, M. H. Wahl, H. C. Urey—129(L)
Free energy of SO_2, A. R. Gordon—336
Hydrocarbon bond additivity, V. Deitz—436(L)
Of hydrogen and deuterium bromides, J. R. Bates, J. O. Halford, L. C. Anderson—531
Of H_2S and S_2, P. C. Cross—168
Isomers of butane, F. D. Rossini—438(L)
Of propane, J. A. Beattie, N. Poffenberger, C. Hadlock—96
Of sodium tungstate, R. W. Goranson, F. C. Kracek—87, 546
Of SO_2, CS_2 and COS and their chemical equilibria, P. C. Cross—825
Of tetramethylmethane, L. S. Kassel—115
Thermal expansion of sodium tungstate, J. B. Austin, R. H. H. Pierce, Jr.—683
Transition of KO_2, E. W. Neuman—243(L)
Vapor pressure of Ba, E. Rudberg, J. Lempert—627
Vapor pressure of HI and DI, J. R. Bates, J. O. Halford, L. C. Anderson—415
Vapor pressures of H_2O and D_2O solutions, W. F. K. Wynne-Jones—197(L)
Vapor pressures of H_2O^{16}, HDO^{16}, and H_2O^{18}, M. H. Wahl, H. C. Urey—411
Vapor pressures of $N^{14}H_3$ and $N^{15}H_3$, M. H. Wahl, J. Huffman, J. A. Hipple, Jr.—435(L)
Thermodynamics
Explanatory, J. N. Brönsted—223
Families of thermodynamic equations, F. O. Koenig—29
Generalized notation, H. A. C. McKay—715

Valence
In aldehydes and ketones, R. S. Mulliken—564
Of aromatic free radicals, E. A. Hylleraas—313
Bond eigenfunctions, H. Eyring, H. Gershinowitz—224
Bond energies of hydrocarbons, V. Deitz—58(L)
Electroaffinity and dipole moments, R. S. Mulliken—573
Electroaffinity, polyatomic applications, R. S. Mulliken—586
Electronic structure of diborane, *et al.*, R. S. Mulliken—635
Electronic structure of linear triatomic molecules, R. S. Mulliken—720
Electronic structure of methane, ethane, ethylene, acetylene, R. S. Mulliken—517
Electronic structures of molecules, R. S. Mulliken—564, 573, 586
Electronic structures of polyatomic molecules, R. S. Mulliken—375
Energies of hydrocarbon molecules, R. Serber—81
He_2^+ molecule ion, S. Weinbaum—547
I bond resonance of diiodoethylene, H. P. Klug—747
And magnetism of complex salts, J. H. Van Vleck—807
Quantum-mechanical treatment of, G. W. Wheland—230
Relation between Mulliken and Slater-Pauling theories, J. H. Van Vleck—803
Theory of dipole moments, R. S. Mulliken—573
Theory of free radicals, L. Pauling, G. H. Wheland—315
Theory of free radicals and organo-alkali compound, B. Nilsen—15; E. A. Hylleraas—313
Unsaturated and aromatic hydrocarbons, G. W. Wheland—356
Valence angle of diiododiphenyl ether, L. R. Maxwell, S. B. Hendricks, V. M. Mosley—699
Vector and bond eigenfunction methods, R. S. Bear, H. Eyring—98
Vapor pressure
Of Ba, E. Rudberg, J. Lempert—627
Of hydrogen and deuterium bromides, J. R. Bates, J. O. Halford, L. C. Anderson—531
Of HI and DI, J. R. Bates, J. O. Halford, L. C. Anderson—415

X-ray diffraction
In ionic solutions, J. A. Prins—72, 362
By methyl alcohol, W. H. Zachariasen—158
By *n*-heptane, W. C. Pierce—252
X-rays
Chemical reactions induced by, H. Fricke, E. J. Hart—596(L)
Decomposition of H_2O, H. Fricke, E. J. Hart—596(L)
Decomposition of H_2O_2, H. Fricke—364(L)
Oxidation of Fe^{++} to Fe^{+++} induced by, H. Fricke, E. J. Hart—60(L)
Oxidation of nitrite induced by, H. Fricke, E. J. Hart—365(L)

Zeeman effect
Lines of solid $KCr(SO_4)_2 \cdot 12H_2O$, F. J. Spedding, G. C. Nutting—369